UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,301	07/05/2000	Derek W. Bolton	CSC01275	4206

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EXAMINER
KADING, JOSHUA A

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 10/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.		Applicant(s)	
Office Action Summary		09/610,301		BOLTON, DEREK W.	
		Examiner		**Art Unit**	
		Joshua Kading		2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-35_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-35_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _05 July 2000_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____ .

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _4_ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1.   This application, filed under former 37 CFR 1.60, lacks formal drawings. The

informal drawings filed in this application are acceptable for examination purposes.

When the application is allowed, applicant will be required to submit new formal

drawings. In unusual circumstances, the formal drawings from the abandoned parent

application may be transferred by the grant of a petition under 37 CFR 1.182.

Specification

2.   Applicant is reminded of the proper language and format for an abstract of the
disclosure.

The abstract should be in narrative form and generally limited to a single
paragraph on a separate sheet within the range of 50 to 150 words. It is important that
the abstract not exceed 150 words in length since the space provided for the abstract
on the computer tape used by the printer is limited. The form and legal phraseology
often used in patent claims, such as "means" and "said," should be avoided. The
abstract should describe the disclosure sufficiently to assist readers in deciding whether
there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information
given in the title. It should avoid using phrases which can be implied, such as, "The
disclosure concerns," "The disclosure defined by this invention," "The disclosure
describes," etc.

3.   The abstract of the disclosure is objected to because it exceeds 150 words in

length. Correction is required. See MPEP § 608.01(b).

4.   The disclosure is objected to because of the following informalities: the title in the

disclosure is different from the title on record.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-8, 11-16, 19, and 20 are rejected under 35 U.S.C. 102(b) as being

anticipated by RFC2582 (The NewReno Modification to TCP's Fast Recovery Algorithm,

from applicant's IDS).

7. In regard to claim 1, RFC2582 discloses a network device-based method

comprising: determining, upon receiving acknowledgement of receipt of new data, an

excess number of duplicate acknowledgements based upon a count of consecutive

duplicate acknowledgement packets (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", lines 8-13 of section 3);

8. taking a network packet transmission recovery action based upon said excess

number of duplicate acknowledgements (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", lines 8-13 of section 3 implying that when a

threshold of duplicate acknowledgements is reached Fast Recovery Procedure begins);

and

9. storing said excess number of duplicate acknowledgements as a number of

duplicate acknowledgements (section 3 "The Fast Retransmit and Fast Recovery

Algorithms in NewReno", step 1, line 1 where it is implied that the number of duplicate

acknowledgements must be stored in order to keep a count).

10.   In regard to claim 3, RFC2582 discloses the network device-based method

further comprising deflating a congestion window upon said value of said excess

number of duplicate acknowledgements in bytes being less than a number of bytes in a

transmission control protocol sender segment (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", step 5, lines 7-13).

11.   In regard to claim 4, RFC2582 discloses a network device-based method further

comprising optimizing a size of a congestion window to match a reduction in a quantity

of unacknowledged data upon said excess number of duplicate acknowledgements

being greater than a TCP sender segment (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", step 5, lines 24-31).

12.   In regard to claim 5, RFC2582 discloses a network device-based method further

comprising comparing said excess number of duplicate acknowledgements with a

duplicate acknowledgement threshold (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", lines 8-13 of section 3 where it is implied that the

value of 3 is the threshold to which the count is being compared to).

13.   In regard to claim 6, RFC2582 discloses a network device-based method further

comprising performing a fast retransmit upon said comparing said excess number of

duplicate acknowledgements with a duplicate acknowledgement threshold indicating

that said excess number of duplicate acknowledgements is greater than or equal to said

duplicate acknowledgement threshold (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", lines 3-9 where it is implied the Fast Retransmit is

part of the recovery method).

14.   In regard to claims 7 and 15, RFC2582 discloses a network device-based

method further comprising analyzing a size of a congestion window (section 4

"Resetting the Retransmit Timer", lines 15-17 of section 4 where it is implied that the

window is analyzed for size to know how many data packets to transmit).

15.   In regard to claims 8 and 16, RFC2582 discloses a network device-based

method further comprising resizing said congestion window upon said analyzing said

size of said congestion window showing said size is greater than a predefined size

(section 5 "Avoiding Multiple Fast Retransmits, line 14 of section 5 where it is implied

the congestion window is reduced after being analyzed).

16.   In regard to claims 11 and 19, RFC2582 discloses a network device-based

method wherein said method is included in Transmission Control Protocol congestion

avoidance (section 3 "The Fast Retransmit and Fast Recovery Algorithms in NewReno",

lines 1-3 of section 3 where it is the purpose of the fast recovery algorithm to avoid

congestion).

17.   In regard to claim 12, RFC2582 discloses a network device-based method

comprising:

18.   determining, upon receiving acknowledgement of receipt of new data, an excess

number of duplicate acknowledgements based upon a count of consecutive duplicate

acknowledgement packets (see claim 1 above);

19.   deflating a congestion window upon said value of excess number duplicate

acknowledgements being less than a transmission control protocol sender segment

(see claim 3 above);

20.   optimizing a size of said congestion window to match a reduction in a quantity of

unacknowledged data upon said excess number of duplicate acknowledgements being

greater than a transmission control protocol sender segment (see claim 4 above); and

21.   storing said excess number of duplicate acknowledgements as a number of

duplicate acknowledgements (see claim 1 above).

22.   In regard to claim 13, RFC2582 discloses a network device-based method further

comprising comparing said excess number of duplicate acknowledgements with a

duplicate acknowledgement threshold upon said excess number of duplicate

acknowledgements in bytes being greater than a number of bytes in a TCP sender

segment (section 3 "The Fast Retransmit and Fast Recovery Algorithms in NewReno",

step 5, lines 7-10).

23.   In regard to claim 14, RFC2582 discloses a network device-based method further

comprising performing a fast transmit upon said comparing said excess number of

duplicate acknowledgements with a duplicate acknowledgement threshold indicating

that said excess number of duplicate acknowledgements is greater than or equal to said

duplicate acknowledgement threshold (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", line1 and section 1, line 1).

24.   In regard to claim 20, RFC2582 discloses a transmission control protocol method

comprising:

25.   performing a TCP fast recovery process (section 3 "The Fast Retransmit and

Fast Recovery Algorithms in NewReno", line 1);

26.   performing a TCP fast recover extended process upon receiving

acknowledgements of receipt of new data in said TCP fast recover process (section 3

"The Fast Retransmit and Fast Recovery Algorithms in NewReno", step 5).

Claim Rejections - 35 USC § 103

27.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

28.   Claims 2, 9, 10, 17, 18, 21-31, 34, and 35 are rejected under 35 U.S.C. 103(a) as

being unpatentable over RFC2582 in view of Chapman et al. (U.S. Patent 6,493,316

B1).

29.   In regard to claims 2 and 23, RFC2582 discloses a network device-based

method...determining an excess number of duplicate acknowledgements (see claim 1

above). RFC2582 lacks determining whether a congestion window is inflated prior to

said determining an excess number of duplicate acknowledgements. However,

Chapman et al. disclose determining whether a congestion window is inflated prior to

said determining an excess number of duplicate acknowledgements (col. 5, lines 33-34

where inflating the window after the receipt of a non-duplicate ACK is received is a

method of determining if the window is inflated). It would have been obvious to one with

ordinary skill in the art at the time of invention to include the determining whether a

congestion window is inflated with the network device-based method. The motivation

being to increase the response time of the system to network congestion.

30.   In regard to claims 9, 17 and 30, RFC2582 discloses a network device-based

method (see claim 1 above). RFC2582 lacks analyzing a size of a congestion window

upon said comparing said excess number of duplicate acknowledgements with a

duplicate acknowledgement threshold indicating that said excess number of duplicate

acknowledgements is less than said duplicate acknowledgement threshold. However,

Chapman et al. disclose analyzing a size of a congestion window upon said comparing

said excess number of duplicate acknowledgements with a duplicate acknowledgement threshold indicating that said excess number of duplicate acknowledgements is less than said duplicate acknowledgement threshold (col. 5, lines 33-34 where inflating the window after the receipt of a non-duplicate ACK is received is a method of determining if the window is inflated and this situation occurs when the duplicate acknowledgement threshold is not met). It would have been obvious to one with ordinary skill in the art at the time of invention to include the analyzing the size of the congestion window to the network device-based method. The motivation being to appropriate adjust the congestion window size based on network congestion.

31.   In regard to claims 10, 18, 29 and 31, RFC2582 discloses a network device-based method (see claim 1 above). RFC2582 lacks resizing said congestion window upon analyzing said size of said congestion window showing said size is greater than a predefined size. However, Chapman et al. disclose resizing said congestion window upon analyzing said size of said congestion window showing said size is greater than a predefined size (col. 8, lines 2-5 where MAX-WND is the predetermined size and C-WND is the actual size of the window). It would have been obvious to one with ordinary skill in the art at the time of invention to include the resizing of the congestion window with the network device-based method. The motivation being to effectively manage bandwidth of the network.

32.   In regard to claim 21, RFC2582 discloses...a fast recovery extended

method...(see claim 20 above). RFC2582 lacks a processor; and a memory coupled to

said processor, and storing a fast recovery extended method wherein upon execution of

said fast recovery extended method by said processor a fast recovery process is

extended. However, Chapman et al. discloses a processor; and a memory coupled to

said processor, and storing a fast recovery extended method wherein upon execution of

said fast recovery extended method by said processor a fast recovery process is

extended (figure 15, elements 32, 30, and 28; col. 8, lines 27-31 where elements 32 and

28 constitute the processor and 30 is the memory that stores the fast recovery extended

method). It would have been obvious to one with ordinary skill in the art at the time of

invention to include the fast recovery extended method with the processor, and

memory. The motivation being to allow for implementation of the fast recovery extended

method.

33.   Claim 22 is rejected for the same reasons as claim 21 even though claim 21

lacks determining, upon receiving acknowledgement of receipt of new data by said

network device, an excess number of duplicate acknowledgements based upon a count

of consecutive duplicate acknowledgement packets; taking a network packet

transmission recovery action based upon said excess number of duplicate

acknowledgements; and storing said excess number of duplicate acknowledgements in

said memory as a number of duplicate acknowledgements. However, RFC2582 further

discloses determining, upon receiving acknowledgement of receipt of new data by said

network device, an excess number of duplicate acknowledgements based upon a count

of consecutive duplicate acknowledgement packets; taking a network packet

transmission recovery action based upon said excess number of duplicate

acknowledgements; and storing said excess number of duplicate acknowledgements in

said memory as a number of duplicate acknowledgements (see claim 1 above).

34.   Claim 24 is rejected for the same reasons as claim 22 even though claim 22

lacks deflating a congestion window upon said value of said excess number of duplicate

acknowledgements in bytes being less than a number of bytes in a transmission control

protocol sender segment. However, RFC2582 discloses deflating a congestion window

upon said value of said excess number of duplicate acknowledgements in bytes being

less than a number of bytes in a transmission control protocol sender segment (see

claim 3 above).

35.   Claim 25 is rejected for the same reasons as claim 22 even though claim 22

lacks optimizing a size of a congestion window to match a reduction in a quantity of

unacknowledged data upon said excess number of duplicate acknowledgements being

greater than a TCP sender segment. However, RFC2582 discloses optimizing a size of

a congestion window to match a reduction in a quantity of unacknowledged data upon

said excess number of duplicate acknowledgements being greater than a TCP sender

segment (see claim 4 above).

36.   Claim 26 is rejected for the same reasons as claim 22 even though claim 22

lacks comparing said excess number of duplicate acknowledgements with a duplicate

acknowledgement threshold. However, RFC2582 discloses comparing said excess

number of duplicate acknowledgements with a duplicate acknowledgement threshold

(see claim 5 above).

37.   Claim 27 is rejected for the same reasons as claim 22 even though claim 22

lacks performing a fast retransmit upon said comparing said excess number of duplicate

acknowledgements with a duplicate acknowledgement threshold indicating that said

excess number of duplicate acknowledgements is greater than or equal to said

duplicate acknowledgement threshold. However, RFC2582 discloses performing a fast

retransmit upon said comparing said excess number of duplicate acknowledgements

with a duplicate acknowledgement threshold indicating that said excess number of

duplicate acknowledgements is greater than or equal to said duplicate

acknowledgement threshold (see claim 6 above).

38.   Claim 28 is rejected for the same reasons as claim 27 even though claim 27

lacks analyzing a size of a congestion window. However, RFC2582 discloses analyzing

a size of a congestion window (see claim 7 above).

39.   Claim 32 is rejected for the same reasons as claim 22 even though claim 22

lacks a method that is included in Transmission Control Protocol congestion avoidance.

However, RFC2582 discloses a method that is included in Transmission Control

Protocol congestion avoidance (see claim 11 above).

40.   In regard to claim 34, RFC2582 discloses a TCP fast recovery process (section 3

"The Fast Retransmit and Fast Recovery Algorithms in NewReno", line 1); a TCP fast

recover extended process upon receiving acknowledgements of receipt of new data in

said TCP fast recover process (section 3 "The Fast Retransmit and Fast Recovery

Algorithms in NewReno", step 5). RFC2582 lacks the means for performing a TCP fast

recovery process; means for performing a TCP fast recover extended process upon

receiving acknowledgements of receipt of new data in said TCP fast recover process.

However, Chapman et al. disclose means for performing a TCP fast recovery process;

means for performing a TCP fast recover extended process upon receiving

acknowledgements of receipt of new data in said TCP fast recover process (figure 15

which is a network device that implements the fast recovery methods). It would have

been obvious to one with ordinary skill in the art at the time of invention to include the

means for performing the fast recovery methods. The motivation being to have a

working device to implement the method.

41.   In regard to claim 25, RFC2582 discloses determining, upon receiving

acknowledgement of receipt of new data, an excess number of duplicate

acknowledgements based upon a count of consecutive duplicate acknowledgement

packets (section 3 "The Fast Retransmit and Fast Recovery Algorithms in NewReno",

lines 8-13 of section 3); taking a network packet transmission recovery action based

upon said excess number of duplicate acknowledgements (section 3 "The Fast

Retransmit and Fast Recovery Algorithms in NewReno", lines 8-13 of section 3 implying

that when a threshold of duplicate acknowledgements is reached Fast Recovery

Procedure begins); and storing said excess number of duplicate acknowledgements as

a number of duplicate acknowledgements (section 3 "The Fast Retransmit and Fast

Recovery Algorithms in NewReno", step 1, line 1 where it is implied that the number of

duplicate acknowledgements must be stored in order to keep a count). However,

RFC2582 lacks means for determining, upon receiving acknowledgement of receipt of

new data, an excess number of duplicate acknowledgements based upon a count of

consecutive duplicate acknowledgement packets; means for taking a network packet

transmission recovery action based upon said excess number of duplicate

acknowledgements; and means for storing said excess number of duplicate

acknowledgements as a number of duplicate acknowledgements. However, Chapman

et al. disclose means for determining, upon receiving acknowledgement of receipt of

new data, an excess number of duplicate acknowledgements based upon a count of

consecutive duplicate acknowledgement packets; means for taking a network packet

transmission recovery action based upon said excess number of duplicate

acknowledgements; and means for storing said excess number of duplicate

acknowledgements as a number of duplicate acknowledgements (figure 15 which is a

network device that implements all the above tasks). It would have been obvious to one

with ordinary skill in the art at the time of invention to include the means for

implementing all the above tasks. The motivation being to have a working device to

implement all the tasks.

42.   Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over

RFC2582.

43.   In regard to claim 33, RFC2582 discloses a network device-based method for

determining, upon receiving acknowledgement of receipt of new data, an excess

number of duplicate acknowledgements based upon a count of consecutive duplicate

acknowledgement packets (section 3 "The Fast Retransmit and Fast Recovery

Algorithms in NewReno", lines 8-13 of section 3); taking a network packet transmission

recovery action based upon said excess number of duplicate acknowledgements

(section 3 "The Fast Retransmit and Fast Recovery Algorithms in NewReno", lines 8-13

of section 3 implying that when a threshold of duplicate acknowledgements is reached

Fast Recovery Procedure begins); and storing said excess number of duplicate

acknowledgements as a number of duplicate acknowledgements (section 3 "The Fast

Retransmit and Fast Recovery Algorithms in NewReno", step 1, line 1 where it is

implied that the number of duplicate acknowledgements must be stored in order to keep

a count). However, RFC2582 lacks a programmable memory including a fast recovery

extended method wherein said fast recovery method upon execution comprises:

determining, upon receiving acknowledgement of receipt of new data, an excess

number of duplicate acknowledgements based upon a count of consecutive duplicate

acknowledgement packets; taking a network packet transmission recovery action based

upon said excess number of duplicate acknowledgements; and storing said excess

number of duplicate acknowledgements as a number of duplicate acknowledgements. It

would have been obvious to one with ordinary skill in the art at the time of invention to

make the network based-device method into a programmable set of executable

instructions. The motivation being a programmable set of executable instructions is the

most efficient way to implement the method steps.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joshua Kading whose telephone number is (703) 305-

0342. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone number

for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

3900.

Joshua Kading
Examiner
Art Unit 2661

JK
September 22, 2003

KENNETH VANDERPUYE
PRIMARY EXAMINER